

REMARKS/ARGUMENTS

**Claims 1-2, 8-10, 13-16, 18 and 21 - 28 have been rejected under 35 USC 103(a) as being unpatentable over Robin in view of Aurum and Hartman.** Applicant respectfully traverses this rejection.

Claim 1 provides a method of release planning, the method comprising:

assigning stakeholder priorities to a set of requirements, where the priorities are assigned by plural stakeholders;

explicitly defining a set of constraints on the requirements; and

generating a set of release plan solutions using algorithms carried out by a computer for evaluation together, and each release plan solution of the set of release plan solutions satisfying the constraints, balancing between stakeholder priorities of different stakeholders, and having a positive impact, measured by objective criteria, on at least one of project time, overall cost and quality.

First, the Aurum reference cited by the examiner is not a citable prior art reference. The Aurum reference was published November 1, 2003, less than one year prior to filing of the present application. Further, the applicant has filed a declaration attesting to having conceived the invention, reducing it to practice prior to November 1, 2003, and diligently pursuing a patent application since prior to November 1, 2003 until the filing of the patent application.

This is sufficient to dispose of the examiner's rejection, but the applicant also remarks that Robin, Hartman and Aurum are all irrelevant in any event.

Strikingly, not any of the references cited, not Robin, nor Aurum, nor Hartman actually teach anything about how to carry out a method of release planning, let alone teach the particular steps claimed by the applicant. The examiner is selecting individual parts of very large documents, taking the parts out of context, and using the applicant's own disclosure as a guide to somehow construct what the references essentially say nothing about.

### **Robin**

The examiner cited Robin as disclosing the first two method steps. The applicant disagrees.

First, it is observed that Robin is irrelevant, since the date of filing of Robin, September 30, 2004 is after the filing date of the instant application. While Robin claims priority from an earlier provisional having a filing date before the filing date of the instant application, the applicant does not concede that the provisional supports the non-provisional. The applicant recognizes that the examiner insists that it is applicant's task to show that the provisional does not support the non-provisional. Evidently, neither the applicant nor the examiner wishes to undertake this difficult task. This issue will thus be left for some future time, but the applicant observes that by failing to show support in the provisional for the examiner's rejections, the examiner has failed to show that Robin is relevant at all.

Second, although the examiner admits that Robin does not teach generating a set of release plan solutions carried out by a computer, nothing in Robin teaches any of the method steps of claim 1. For example, Robin does not explicitly define a set of constraints on the requirements.

In addition, Robin does not teach how to carry out a release plan solution. Robin mentions creating a multi-release plan [357], but the statement here carries no content. The other parts of Robin do not teach what to do with this multi-release plan. Although the examiner cited Fig. 5, step 2, "Analyze & Prioritize", this is not part of a multi-release plan and is in fact part of a risk analysis that plays no part in a release plan solution.

While Robin refers repeatedly to constraints, there is no place in Robin where there is an actual teaching of "defining a set of constraints on the requirements". Nothing in Robin says what to do with the constraints referred to. The constraints are observed to be a general part of the overall problem, but are never explicitly defined and are not defined on the requirements.

### **Hartman**

The examiner turns to Hartman for a teaching generating a set of release plan solutions using algorithms carried out by a computer. The applicant submits:

First, Hartman does not deal with release plan solutions. Hartman applies algorithms to the classical resource-constrained project scheduling problem (RCPSP), and produces a schedule for an individual to follow. Hence, linking the step of generating a set of release plan solutions using algorithms carried out by a computer to the release plan problem is a link only made by the applicant. In effect, by proposing to use algorithms as taught by Hartman to the problem faced by Robin the examiner is effectively using the applicant's invention against him.

While the examiner conceded that Hartman fails to teach generating multiple solutions for evaluation together (and therefore cited Aurum), the applicant also submits that Hartman is irrelevant for teaching nothing useful about generating release plan solutions. Since the examiner has re-iterated that Hartman discloses generating a set of release plan solutions, and finds the applicant's argument non-persuasive on the point, the applicant now deals with this statement in more detail.

(1) The problem (called A) addressed by Hartmann is 'The resource-constrained project scheduling problem (RCPSP) can be stated as follows: A single project consists of a number of  $n$  activities where each activity has to be processed in order to complete the project. The activities are interrelated by two kinds of constraints.

First, precedence constraints force activity  $j$  not to be started before all its immediate predecessors have been finished. Second, performing the activities requires resources with limited capacities.

Altogether there is a set of  $R$  resources. While being processed, activity  $j$  requires  $r(j,k)$  units of resource  $k$  from  $R$  in every time instant of its non-preemptable duration  $P(j)$ . Resource  $k$  has a limited capacity of  $R(k)$  at any point in time. The parameters  $p(j)$ ,  $r(j,k)$ , and  $R(k)$  are assumed to be non-negative and deterministic.

The objective of the RCPSP is to find precedence and resource feasible completion times for all activities such that the make-span of the project is minimized.

This problem was initially stated in 1969 by A. Pritsker, L. Watters, P. Wolfe, Multiproject scheduling with limited resources: A zero-one programming approach, Management Science 16 (1969) 93-107.

What Hartmann has contributed is a specialized (genetic) solution algorithm for this problem.

(2) The problem (called B) addressed by the applicant is completely different (Claim 1). The applicant seeks to generate more than one release plan, namely a set of release plan solutions. From this set of release plan solutions, a release plan solution may be selected.

(3) The two problems A (solved by Hartman) and B (solved by the applicant) are not related.

1. A looks at tasks for scheduling, B looks for features (referred to as requirements in the claim) packed into releases. Features (requirements) are not the same as tasks. Features are a matter of operational planning.

2. The objective of A is to minimize make-span, the objective of B is to maximize value gained from the packages (each release plan solution having a positive impact, measured by objective criteria, on at least one of project time, overall cost and quality).

3. A is looking for one schedule of tasks, B is looking for a set of release plan solutions, which are candidates for the finally selected solution.

4. A has no consideration of stakeholder priorities at all, while B assigns stakeholder priorities to a set of requirements and balances between stakeholder priorities of different stakeholders.

Therefore, Hartman does not disclose anything related to the method of claim 1 because the

paper does not talk at all about the process of release planning.

The main contribution of the Hartman paper is a special implementation of a genetic algorithm and its application to the classical resource-constrained project scheduling problem (RCPSP). Hartmann proposed a new heuristic called self-adapting genetic algorithm to solve the RCPSP. "The heuristic employs the well-known activity list representation and considers two different decoding procedures. An additional gene in the representation determines which of the two decoding procedures is actually used to compute a schedule for an individual. This allows the genetic algorithm to adapt itself to the problem instance actually solved".

Moreover, Hartman produces a single schedule, and does not teach generating anything let alone a set of release plan solutions ... for evaluation together. In fact, in neither Robin nor Hartman is there a consideration of generating multiple solutions for evaluation together. The combination of references therefore fails to yield the invention.

### **Aurum**

The examiner turns to Aurum for a teaching of explicitly defining a set of constraints on the requirements. Aurum, however, teaches nothing about the release plan problem.

Aurum examines the elements of organization-oriented macro decisions as well as process-oriented micro decisions in the RE (requirements engineering) process and illustrates how to integrate classical decision-making models with RE process models. This integration helps in formulating a common vocabulary and model to improve the manageability of the RE process, and contributes towards the learning process by validating and verifying the consistency of decision-making in RE activities.

For that paper, two former papers (dated 1965 and 1976) are considered and their relevance for the requirements engineering process is discussed (on macro respectively micro level). Section 4.1.2 of Aurum simply notes that one must consider requirements and costs and benefits of alternatives, but says nothing about assigning stakeholder priorities to a set of requirements,

where the priorities are assigned by plural stakeholders; explicitly defining a set of constraints on the requirements; and generating a set of release plan solutions using algorithms carried out by a computer for evaluation together.

In their Conclusions, Aurum states that

“A question that arises from the new understanding of RE decisions is ‘how can we best manage the RE activities as a decision-making process?’ The complexity of the activities involved in the RE process call for a need for organizations to coordinate the decision-making process and make the decisions and the roles played with respect to decision-making in RE more visible.”

This clearly indicates that the authors do not see their contribution is a concrete solution method, neither for RE in general, nor for release planning in particular.

All Aurum does is discuss certain issues in RE, but provides no solution. Providing an operational and repeatable method to solve the very concrete problem of release planning is a completely different issue, and is not addressed or intended by the authors.

The ongoing argument “it would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to combine the teachings of Hartman in the Robin-Aurum’s system to further provide other limitations stated above” is not applicable, fundamentally because none of the three has papers has looked into a method for release planning. To state that three papers not addressing release planning at all and vaguely related to each other would allow to provide and concrete method for release planning is neither objective nor constructive.

Accordingly, applicant submits that claim 1 is patentable over Robin in view of Hartman.

All claims are therefore submitted to be patentable over the cited references.

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Claim 2 adds to claim 1 that the generating is carried out repeatedly after changing one or more of the constraints, requirements, objective criteria, or stakeholder priorities.

In Robin, any generating that takes place (and it's not the kind of generating the applicant carries out) is done to a single plan, not a set of solutions.

The remaining claims all depend on claim 1 and are therefore allowable.

Reconsideration and withdrawal of the rejections, and allowance of the claims, is respectfully requested.

Respectfully submitted September 28, 2009,



Anthony R. Lambert  
Agent of Record  
Registration no. 32,813  
Customer no. 020212  
Telephone 780-448-0606